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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/635,057 | 08/06/2003 | Bruce M. Bathurst | 013469-9001-00 | 1336 |

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| EXAMINER | |
|---|---|
| RAYMOND, EDWARD | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2857 | |

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/635,057 | BATHURST ET AL. | |
| | Examiner | Art Unit | |
| | Edward Raymond | 2857 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 June 2005*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see page 9, lines 8-12, filed June 30, 2005, with respect to the rejection(s)of claim(s) 1-41 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,475,384 ("Manenti") have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of 35 U.S.C 103(a) by U.S. Patent No. 5,475,384 ("Manenti") in view of IEEE Standard for a Smart Transducer Interface for Sensors and Actuators-Transducer to Microprocessor Communication Protocols and Transducer Electronics Data Sheet (TEDS) Formats (hereafter referred to as "IEEE Std 1451.2-1997").

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Manenti et al. in view of IEEE Std 1451.2-1997.

Manenti et al. teach a sensor assembly comprising: a transducer configured to measure a signal indicative of an environmental characteristic (Claims 1 and 16: see Figure 1: Sensor 1); a memory element coupled to the transducer and configured to store a plurality of transducer signatures (Claims 1 and 16: see Figure 1: EEPROM 14); and a processor coupled to the memory and configured to store an adaptive algorithm (Claims 1 and 16: see Figure 1: Controller 11 and also col. 60-62: The Examiner notes that compensation and adaptive are synonymous), to identify the transducer type using the transducer signatures (Claims 1 and 16: see col. 2, lines 50-53), to process the environmental characteristic using the identified transducer signatures and the adaptive algorithm (Claims 1 and 16: see col. 3, lines 1-2), and to output the processed environmental characteristics (Claims 1 and 16: see col. 4, lines 24-27: The Examiner notes that the output is to the computer).

Manenti et al. teach a sensor assembly and wherein the transducer signatures comprise a transducer calibration parameter (Claims 2 and 17: see col. 2, lines 60-62).

Manenti et al. teach a sensor assembly and wherein the transducer signatures comprise a transducer temperature compensation parameter (Claims 3 and 18: see Figure 1: Temperature Sensor 15).

Manenti et al. teach a sensor assembly further comprising a reporting device coupled to the processor and configured to receive and report the processed environmental characteristics from the processor (Claims 4 and 19: see col. 4, lines 24-27).

Manenti et al. teach a sensor assembly and wherein the processor automatically identifies the reporting device, and automatically adjusts the processed environmental characteristics based on the identified reporting device (Claims 5 and 20: see col. 4, lines 34-44: The Examiner notes that since the computer is programmed to communicate to the sensor it has adjusted to the protocol of the computer).

Manenti et al. teach a sensor assembly and wherein the reporting device comprises a personal computer (Claims 6, 13, 21 and 28: see col. 4, lines 24-27).

Manenti et al. teach a sensor assembly further comprising a transducer preamplifier coupled to the transducer, and configured to amplify the sensed environmental characteristic (Claims 7 and 22: see Figure 1: Amplifier 12).

Manenti et al. teach a sensor assembly and wherein the processor repeatedly and automatically detects to identify the transducer (Claims 8 and 23: see col. 4, lines 28-48).

Manenti et al. teach a sensor assembly and wherein the processor chooses an adaptive algorithm based on the transducer signatures of the identified transducer (Claims 9 and 24: see col. 4, lines 13-23).

Manenti et al. teach a sensor assembly further comprising at least one signal converter coupled to the transducer and configured to convert the sensed

environmental characteristic to a desired output format (Claims 10 and 25: see Figure 1: A/D Converter 16).

Manenti et al. teach a sensor assembly and wherein the at least one signal converter comprises a sigma-delta analog-to-digital converter, and wherein the desired output format comprises digital data (Claims 11 and 26: see Figure 1: A/D Converter 16: The Examiner notes that a sigma-delta A/D converter is not given any significance, since they perform the same function).

Manenti et al. teach a sensor assembly and wherein the processor calibrates the environmental characteristic with the transducer signatures and the adaptive algorithm (Claims 12 and 27: see col. 4, lines 34-48).

Manenti et al. teach a sensor assembly further comprising a transducer housing configured to house the transducer and the memory and a body housing configured to house the processor and coupled to the transducer housing (Claim 14: see Figure 1).

Manenti et al. teach a sensor assembly further comprising a housing configured to house the transducer, the memory, and the processor (Claim 15 see Figure 1).

Manenti et al. teach all of the features of the claimed invention, except a transducer chosen from among a plurality of transducer types, each type configured to sense a different environmental characteristic or the signal indicative of the environmental characteristic, each transducer signature identifying a transducer type. IEEE Std 1451.2-1997 teaches differentiating and identifying different types of different transducers using a transducer identifying signature (Claims 1 and 16: see Overview on page 1 and also Table 6 on page 16). It would have been obvious to the person having

ordinary skill in the art at the time the invention was made to modify Manenti et al. to use identifying transducer signatures, as taught by the IEEE Std 1451.2-1997, because this would provide for communication between a transducer or sensor and a remote microprocessor.

5. **Claims 29-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Manenti et al. in view IEEE Std 1451.2-1997 and further in view of Curry.

Manenti et al. teach a method of measuring an environmental characteristic with a transducer assembly, wherein a transducer head is coupled to a transducer body, and the transducer body has a processor (Claim 29: see Figure 1), the method comprising: retrieving a plurality of transducer signatures from the memory storing a plurality of transducer signatures (Claim 29: see Figure 1: EEPROM 14); processing the transducer signatures to identify the transducer at the processor (Claim 29: see Figure 1: Microcontroller 11); sensing a signal indicative of the environmental characteristic using the transducer (Claim 29: see Figure 1: Sensor 1); and outputting the conditioned signal indicative of the environmental characteristic (Claim 29: see col. 4, lines 24-27: The Examiner notes that the output is to the computer).

Manenti et al. teach a method wherein the transducer signatures comprise a transducer calibration parameter (Claim 30: see col. 2, lines 60-62).

Manenti et al. teach a method wherein the transducer signatures comprise a transducer temperature compensation parameter (Claim 31: see Figure 1: Temperature Sensor 15).

Manenti et al. teach a method wherein outputting the conditioned signal indicative of the environmental characteristic further comprises coupling the transducer body to a reporting device; and reporting the conditioned signal indicative of the environmental characteristic on the reporting device (Claims 32: see col. 4, lines 24-27).

Manenti et al. teach a method wherein the processor automatically identifies the reporting device, and automatically adjusts the processed environmental characteristics based on the identified reporting device (Claim 33: see col. 4, lines 34-44: The Examiner notes that since the computer is programmed to communicate to the sensor it has adjusted to the protocol of the computer).

Manenti et al. teach a method wherein the reporting device comprises a personal computer (Claims 34 and 41: see col. 4, lines 24-27).

Manenti et al. teach a method further comprising amplifying the signal indicative of the environmental characteristic (Claim 35: see Figure 1: Amplifier 12).

Manenti et al. teach a method wherein the processor repeatedly and automatically detects to identify the transducer (Claim 36: see col. 4, lines 28-48).

Manenti et al. teach a method further comprising choosing an adaptive algorithm based on the transducer signatures of the identified transducer (Claim 37: see col. 4, lines 28-48: The Examiner notes that since the compensation/adaptation is automatic the process chooses how to calibrate or adjust the sensor).

Manenti et al. teach a method wherein outputting the signal indicative of the environmental characteristic further comprises formatting the signal indicative of the

environmental characteristic (Claim 38: see col. 4, lines 28-48: The Examiner notes that the digital is formatted in protocol suitable for decoding by the computer).

Manenti et al. teach a method wherein the signal indicative of the environmental characteristic is in an analog format, the method further comprising converting the environmental characteristic from the analog format into a digital format using a sigma-delta conversion (Claim 39: see Figure 1: A/D Converter 16: The Examiner notes that a sigma-delta A/D converter is not given any significance, since they perform the same function).

Manenti et al. teach a method wherein the processor calibrates the environmental characteristic with the identified transducer signatures and the adaptive algorithm (Claim 40: see col. 4, lines 34-48).

Manenti et al. teach all of the features of the claimed invention, except a transducer head has a memory storing a plurality of transducer signatures. IEEE Std 1451.2-1997 teach a memory storing a plurality of transducer signatures (Claim 29: see Overview of page 1). It would have been obvious to the person having ordinary skills in the art at the time the invention was made to modify Manenti et al. to store transducer signatures on memory, as taught by IEEE Std 1451.2-1997, because this would allow for locally accessing the identifying characteristic of each transducer.

Manenti et al. teach all of the features of the claimed invention, except a method for conditioning the signal indicative of the environmental characteristic using the processor with an adaptive firmware stored in the transducer body and the processed signatures. Curry teaches conditioning an environmental characteristic using the

processor with firmware (Claim 29: see paragraph 35 and paragraph 36). It would have been obvious to the person having ordinary skills in the art at the time the invention was made to modify Manenti et al. to condition the environmental characteristic using the processor with firmware, as taught by Curry, because this would allow more stable signals to be converted into digital data.

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

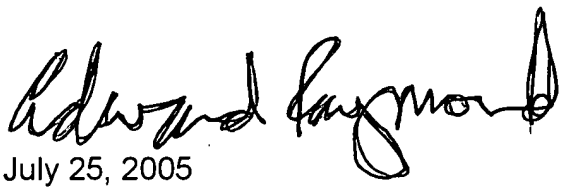
***Contact Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Raymond whose telephone number is 571-272-

2221. The examiner can normally be reached on Monday through alternating Friday between 8:00 AM and 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-2221 for regular communications and 571-272-1562 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.



July 25, 2005
Edward Raymond
Patent Examiner
Art Unit 2857